The Role of Forest Bioproducts in Maine

Michigan Biomaterials Initiative:
The Role of Education, Research & Technology

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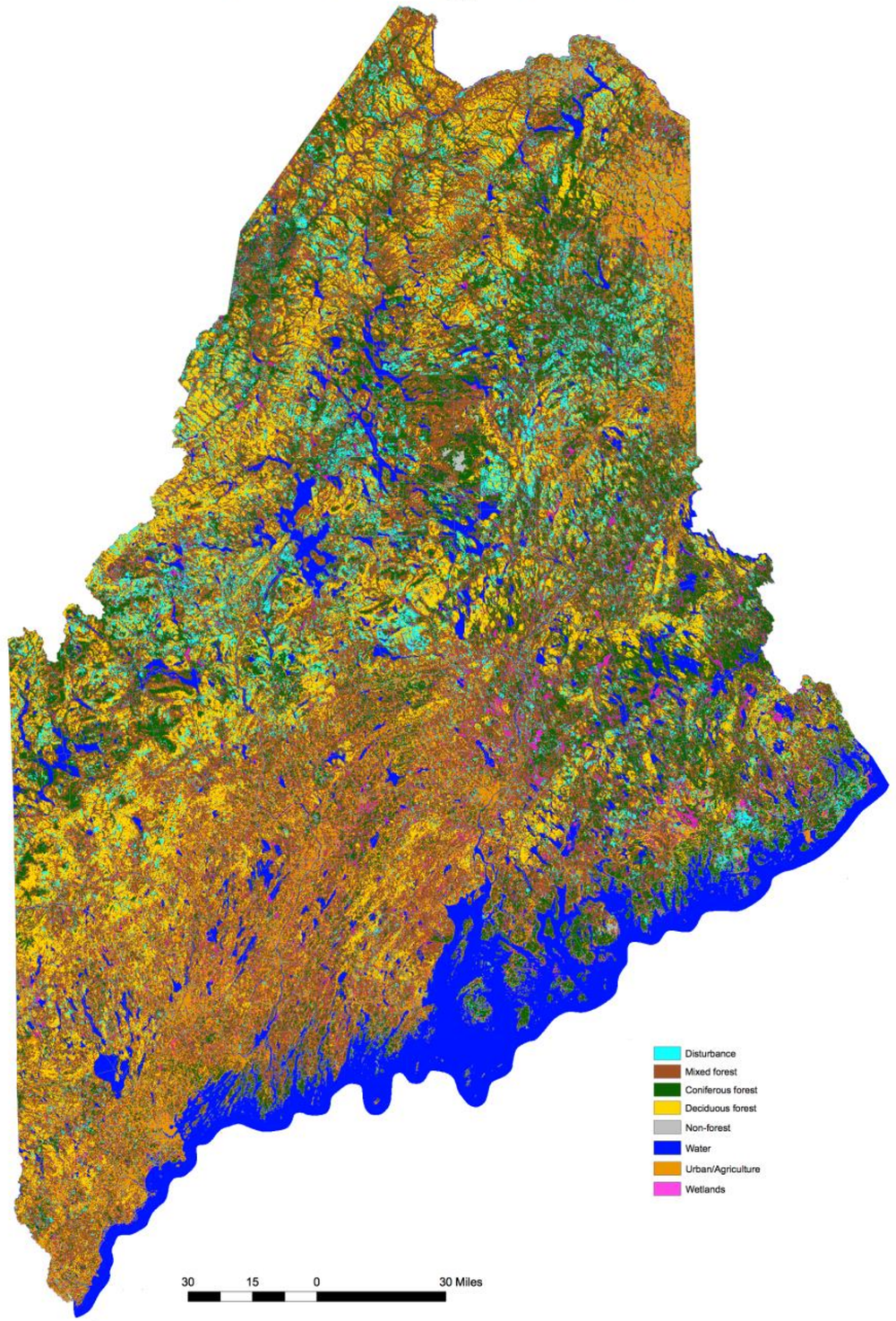
SCHOOL OF FOREST RESOURCES
UNIVERSITY OF MAINE

- ☐ Mike Bilodeau, Director, Process Development Center, University of Maine
- ☐ Doug Denico, State Forester, State of Maine
- ☐ John McNulty, President & CEO, Seven Islands Land Company
- ☐ Stephen Shaler, Director & Professor, School of Forest Resources, University of Maine
- ☐ Jim St. Pierre, Project Manager, Old Town Fuel & Fiber

Forest Cover Type of Maine 2007



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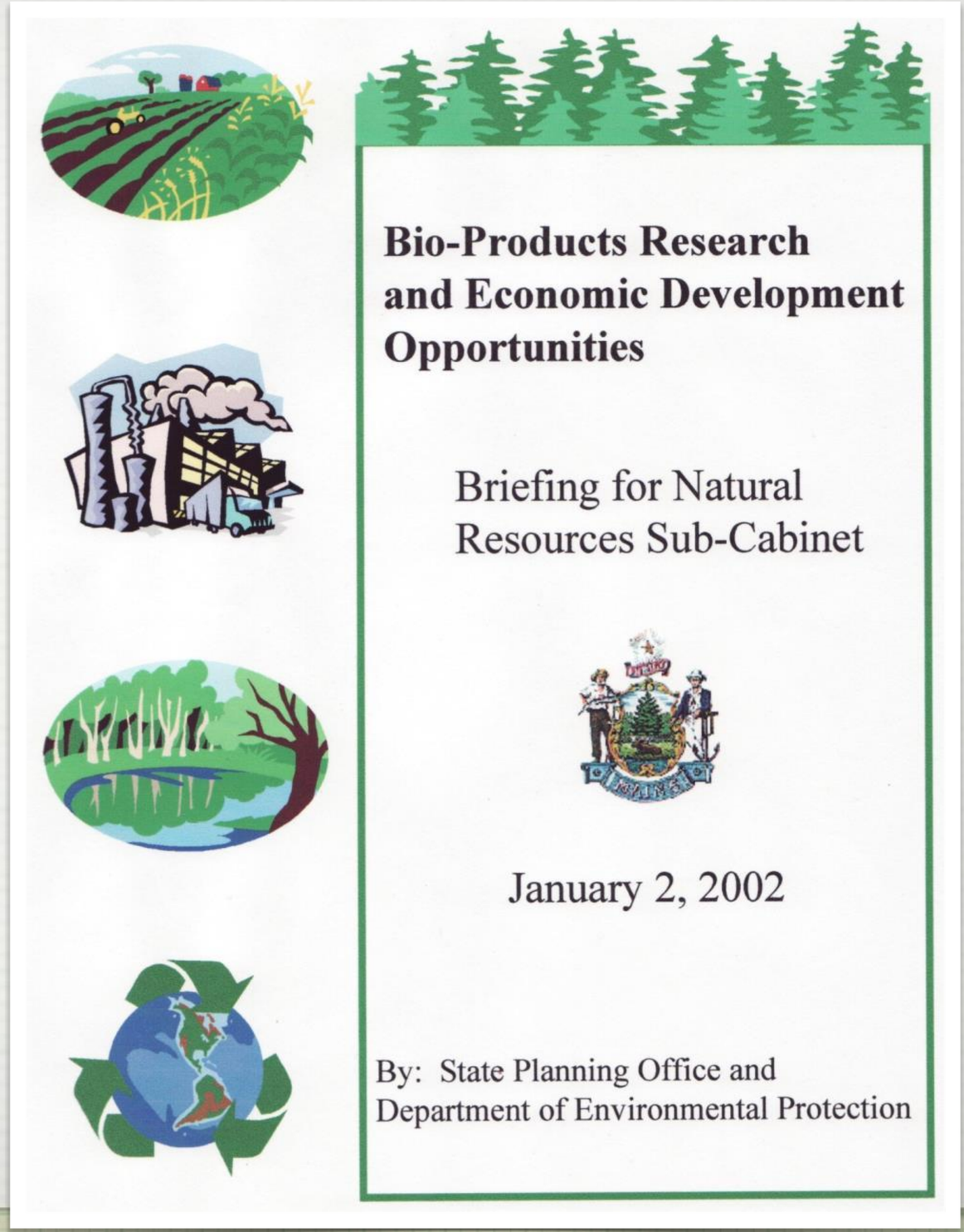
- Develop interest at the University for a more detailed proposal that involves synergies... possibly creating a bioproducts research center.



- 2006 - 2009 NSF EpSCOR Grant - Sustainable Forest Bioproducts - $10.35 million

  - NEW FACULTY

    - BIOLOGICAL PROCESSING (CHEMICAL & BIOLOGICAL ENGINEERING)

    - INDUSTRIAL ECOLOGY (SCHOOL OF FOREST RESOURCES)

    - FOREST BIOMETRICS (SCHOOL OF FOREST RESOURCES

- 2009 ->2012 - Opening of Technology Research Center (TRC)
  $4.8 million funded by Maine Technology Institute
  - Validates, demonstrates, and helps commercialize developing fuel, chemical and advanced material technologies from forest bioproducts at an industrially relevant scale.
- 2011 - Nanocellulose production facility
  $1.5 million funded by US Forest Service
  - Faculty member in Renewable Nanomaterials (School of Forest Resources)
- 2013 - New curriculum implementation in SFR

PRESENTATIONS

- ☐ The impact of new forest bioproduct and bioenergy markets: The State of Maine - Doug Denico
- ☐ Impact of new forest Bioproduct and Bioenergy Markets: A landowner perspective - Jim McNulty
- ☐ University/Industry Research Relationships - Michael Bilodeau
- ☐ Woody BIomass Cellulosic Sugars - Jim St. Pierre
- ☐ Forest Operations, Bioproducts, & Bioenergy Curriculum

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Undergraduate curriculum development at the University of Maine

Forest operations, Bioproducts, & Bioenergy

Chemical & Biological Engineering

ENERGY BALANCE

PROCESS CONTROL

ECONOMIC VIABILITY

SYSTEM OPTIMIZATION

FOREST OPERATIONS

ENVIRONMENTAL PRODUCT DECLARATION

CHEMICAL PRODUCTION

BIOMASS

STAKEHOLDER INVOLVEMENT

LAND MANAGEMENT

PRODUCT CERTIFICATION

COMPOSITE MATERIALS

GIS

NANOCELLULOSE

ECONOMIC VIABILITY

QUALITY CONTROL

POLICY IMPLICATIONS

AIR & WATER QUALITY

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Relevant programs

- Department of Chemical & Biological Engineering
- School of Forest Resources

Forest Operations, Bioproducts & Bioenergy

- ☐ Accredited by Society of Wood Science & Technology
- ☐ Anticipated Accreditation by Society of American Foresters

- ☐ REFLECT FACULTY SIZE, MIX OF SKILLS, OTHER OFFERINGS ON-CAMPUS.
- ☐ EACH UNIVERSITY/STATE WILL BE UNIQUE

http://www.forest.umaine.edu/prospective-students/undergraduate-programs/

Program Description

The program aims to develop individuals (a) with the knowledge and abilities to better manage timber resources and forest operations in an environment of increasing public scrutiny and environmental concern; (b) with an understanding of the processes and challenges related to the efficient and environmentally acceptable harvest and conversion of forest resources to bioproducts and bioenergy; and (c) with an appreciation for the business principles and the associated local, regional, and global markets.

Areas of emphasis

- [ ] COMMUNICATION SKILLS (oral and verbal, stakeholder assessment)
- [ ] QUANTITATIVE SKILLS (Calculus, Physics, Statistics, GIS)

- FORESTRY AND FOREST OPERATIONS (biometrics, silviculture, management)
- MATERIAL SCIENCE PRINCIPLES (anatomy, mechanics, physics, combustion)
- MARKETS, BUSINESS PRINCIPLES (including entrepeneurship)
- SUSTAINABILITY PRINCIPLES (EPD/CERTIFICATION)
- PRINCIPLES OF MANUFACTURING UNIT OPERATIONS

University recognized minors

- ☐ Minor in business administration
- ☐ minor in renewable energy technology